

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/15200

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H01L21/203 C30B23/02 C30B29/40

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C30B H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MAYER M ET AL: "Reactive MBE of group III nitrides: high-quality homoepitaxial GaN and ultra-violet light-emitting diodes" JOURNAL OF CRYSTAL GROWTH, NORTH-HOLLAND PUBLISHING CO. AMSTERDAM, NL, vol. 201-202, May 1999 (1999-05), pages 318-322, XP004175132 ISSN: 0022-0248 cited in the application 2. Experimental procedure, 4. Ultra-violet light emitting diodes	1-7, 13-23
Y	2. Experimental procedure, 4. Ultra-violet light emitting diodes	8-12
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
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- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the International filing date but later than the priority date claimed

- \*T\* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the International search

26 February 2004

Date of mailing of the international search report

09/03/2004

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MAYER M ET AL: "Device performance of ultra-violet emitting diodes grown by MBE" JOURNAL OF CRYSTAL GROWTH, NORTH-HOLLAND PUBLISHING, AMSTERDAM, NL, vol. 189-190, 15 June 1998 (1998-06-15), pages 782-785, XP004148622 ISSN: 0022-0248 the whole document ----	1-6, 13-23
Y		7-12
X	ABERNATHY C R ET AL: "Growth of group III nitrides by metalorganic molecular beam epitaxy" JOURNAL OF CRYSTAL GROWTH, NORTH-HOLLAND PUBLISHING CO. AMSTERDAM, NL, vol. 178, no. 1-2, 1 June 1997 (1997-06-01), pages 74-86, XP004084976 ISSN: 0022-0248 4. Doping ----	1,2, 21-23
X	YANG Z ET AL: "HIGH-QUALITY GAN AND AlN GROWN BY GAS-SOURCE MOLECULAR BEAM EPITAXY USING AMMONIA AS THE NITROGEN SOURCE" JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY: PART B, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 14, no. 3, 1 May 1996 (1996-05-01), pages 2354-2356, XP000621863 ISSN: 0734-211X the whole document ----	21-23
Y	EP 1 164 210 A (SHARP KK) 19 December 2001 (2001-12-19) cited in the application paragraph '0041! - paragraph '0058!; claims; figure 1 paragraph '0013! ----	7-12
A	US 2002/045340 A1 (ONO YOSHINOBU ET AL) 18 April 2002 (2002-04-18) paragraph '0030!; claims ----	1-23

## INTERNATIONAL SEARCH REPORT

## Information on patent family members

International application No

PCT/JP 03/15200

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
EP 1164210	A	19-12-2001	GB 2363518 A	19-12-2001
			EP 1164210 A2	19-12-2001
			JP 2002080298 A	19-03-2002
			US 2002015866 A1	07-02-2002
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			JP 8325094 A	10-12-1996